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IS 5979 (1981): Sine Centres [PGD 25: Engineering Metrology]

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Indian Standard

SPECIFICATION FOR SINE CENTRES

(First Revision)

Engineering Metrology Sectional Committee, EDC 43; Measuring Equipment Subcommittee, EDC 43 : 2 [Ref : Doc : EDC 43 (3390)]

1. Scope — Covers requirements of sine centres with centre distance of rollers 200 mm and 300 mm and for use up to an inclination of 60°.

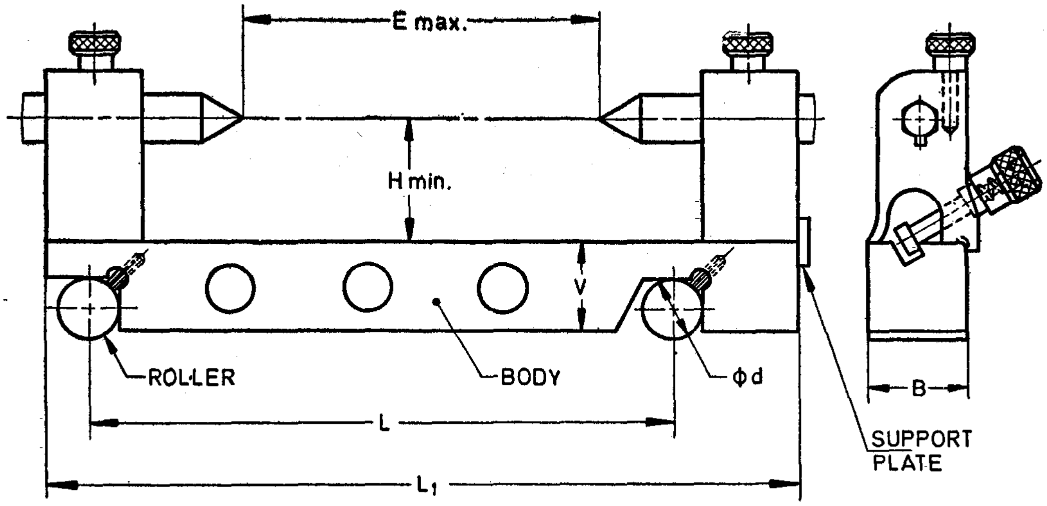
2. Definition

2.1 *Sine Centre* — It is a sine bar with attachment for inspection of conical objects between centres.

3. Dimensions — Shall be as given in Table 1.

TABLE 1 DIMENSIONS FOR SINE CENTRES

All dimensions in millimetres.



Overall Length L_1	Central Distance of Roller L	H Min	E Max	B	V	d
285	200	32	130	45	45	30
385	300	63	185	45	45	30

Note — Relief holes shown in the figure are only illustrative.

Adopted 12 May 1981

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[redacted] Gr 2

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4. Permissible Deviations — Shall be as given in Table 2.

TABLE 2 PERMISSIBLE DEVIATIONS

Accuracy Requirements		Permissible Deviations in µm
Rollers	Central distance *L*	± 3
	Diameter	± 2
	Difference between mean diameter	1
	Circularity	2
	Cylindricity	3
	Parallelism of roller axis over lengths	3
Centres	Parallelism of centre axis to bottom contact plane of rollers	10
	Perpendicularity of axes of centres to that of rollers	10
	Coaxility	10

Note — Permissible deviation for centres shown are for maximum lengths.

5. General Requirements

5.1 *Material* — Body, rollers and centres shall be made of suitable steels as recommended in IS : 7018 (Part I) - 1973 'Technical supply conditions for gauges: Part I General'.

5.2 *Hardness* — The working surfaces, rollers, guide surfaces for V-blocks for sliding of centres and tips of centres shall have a hardness of not less than 700 *HV* [*see* IS : 1501-1968 Method for Vickers hardness test for steel (*first revision*)].

5.3 *Surface Roughness* — Shall be as per Table 3.

TABLE 3 SURFACE ROUGHNESS

Surface	Roughness Grade Number
Cylindrical surface of rollers	N3
Top surfaces of body	N5
Guide surface of V-block	N5
Taper and cylindrical surfaces of centres	N3

5.4 *Mechanical Requirements*

5.4.1 Sine centre shall be so designed that angles may be measured and checked up to 60° by using slip gauges. Sine centres shall be sufficiently rigid. Rollers shall be clamped firmly to the body without any play. Holes for fixing the rollers shall not extend up to the top surface of the body.

5.4.2 The centres shall be adjustable but shall be such that they may be rigidly clamped in position.

5.4.3 It is preferable to restrict the movement of the block holding centres to minimum, as such, it is recommended to fix support plate as illustrated in Table 1.

5.4.4 Sine centres shall be designed for inspection of jobs having male and female centres.

6. Designation — Sine centres shall be designated by centre distance and number of this standard.

Example:

A sine centre of centre distance 200 mm shall be designated as:

Sine Centre 200 IS : 5979

7. Marking — The sine centre shall be legibly and permanently marked with centre distance, manufacturer's name or trade-mark, and identification number.

7.1 *ISI Certification Marking* — Details available with the Indian Standards Institution.

8. Packing and Storage — The sine centre shall be carefully cleaned before packing and given a suitable corrosion treatment.

EXPLANATORY NOTE

This specification was first published in 1970. The design illustrated in the earlier version was too bulky and it was found that the sine centres made as per that design were unable to meet accuracy requirements. Hence an effort has been made in this revision to change the design to reduce bulk.

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